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AN INVESTIGATION OF THE CRITIC-BUYER EFFECTS ON VALUATION PROCESSES OF AMBIGUOUSLY APPRAISED PRODUCTS

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Abstract:	Valuation in markets of ambiguously appraised products (i.e., coffee, wine, upscale restaurants) is often performed by a group of recognized experts who use formal and standardized approaches. Current business practices and technologies allow these participants to fluidly change their role from the product evaluator to a buyer, which we term as Critic-Buyers. Whereas existing literature concentrates mainly on single roles, this paper theorizes on the effects of duality of roles on product valuation. We define a phenomenon called Critic-Buyer Effects, and show how this effect is tied to economic exchanges. Furthermore, we propose that critic participation tends to evolve into a network of critic-buyers, which also affects the economic outcome. As opposed to a market purely segregated into critics and buyers, we argue that the transition of critics into a dual critic-buyer role positively affects economic value by reinforcing these actors' commitment to the product, and therefore, should be encouraged.

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1. Introduction

Valuation practices of ambiguously appraised products such as fine art, coffee, wine, upscale restaurants, and so on, by organizations have grown in prominence through various awards, competitions, and auditing operations (Espeland and Sauder 2007, Gemser et al. 2008). These practices educate consumers about products or services (Hagiu and Spulber 2013, Spulber 2010, Standifird 2001), enhance trust, and promote exchanges among market participants (Jeacle and Carter 2011, Kashkool 2010), and therefore, are considered as the cornerstone of market organization (Ahrne et al. 2015, Beckert and Aspers 2011). Valuation practices have also gained significant popularity in the last years through the advent of online marketplaces and platforms (Dukes and Liu 2016, Orlikowski and Scott 2014, Rietveld and Eggers 2016).

Typically, valuation processes in organizations are performed by a group of recognized experts, or critics who use formal and rather standardized approaches to evaluate products that are considered to have ambiguous value. By ambiguous value we refer to products with values that are difficult to evaluate by consumers, and therefore need a third party (i.e., experts, critics, or judges) to provide guidance regarding the worth of such products (Gemser et al. 2008). For example, an art expert appraises art consignments before an auction or a wine critic grades wines before they are sold. Current business practices allow buyers to be critics and critics to be buyers (e.g., Gemser et al. 2008), sometimes in the same event. For example, specialty coffee auction house such as Alliance for Coffee Excellence (ACE) allows critics who evaluated and graded specialty coffees to be buyers of such coffees in international online auctions. We term these buyers as *Critic Buyers*, and define them as buyers who have participated in the valuation process of the products they might end up purchasing later.

Dual roles played by the same actor on the value of goods that are sold might pose conflict of interests. In particular, critics may collude and undervalue products they wish to purchase to generate surplus. Also, the role of a critic and a buyer might also seem to be at odds. That is, on the one hand, the supply side of a market recognizes the importance of critics' influence on buyers, and in some circumstances, economic incentives exist to defraud reviewing systems (Rietveld and Eggers 2016). On the other hand, when the value of the product is ambiguous, buyers indeed need critics to better gauge the value of the products (Gemser et al. 2008, Hsu et al. 2012, Zuckerman 1999). Despite potential conflict of interests, current organizations encourage and even depend on the presence of different types of dual roles in their review systems. In situations in which both roles can be played by the same person, we believe it is unclear the effects of such duality of roles on the economic outcome of the products in question.

We address this gap by exploring two related research questions: *(1) Do critic-buyers influence the final price of the product? (2) Do critic-buyers past experiences as a critic influence their willing-to-pay a higher price for the product?* To answer the first question, we rely on socio-cognitive theories

(Heyman et al. 2004, Podolny and Hill-Popper 2004) and we pay attention to critic-buyers that act as buyers of the same products that they have assessed. For the second question, we rely on a novel approach using social networks of critics throughout different valuation events to measure critic effects based on the centrality of these critics in such networks. In our empirical context, some critics participate more frequently than others in the valuation process and participation in these evaluation events is face to face. Given this variance in participation, we suggest that such variance create a social structure among the critics where the critics' position identifies their level of influence in the valuation process, and ultimately, the economic outcome (Dass et al. 2014). This paper refers these two effects as *critic-buyer effects*, and provide evidence of their effects on the final value of the product during economic exchanges.

Organizations and markets are witnessing an explosion of different platforms that control valuation tools due to information and communication technologies. In many of these online platforms, anonymity, personalization, credibility, among other issues seem to be altering the traditional valuation approach (Dukes and Liu 2016, Orlikowski and Scott 2014, Resnick et al. 2006, Rietveld and Eggers 2016). In this study, we investigate our research questions by using data from specialty coffee industry and a platform called Alliance for Coffee Excellence (ACE) (https://www.allianceforcoffeeexcellence.org). This platform trades highly ranked coffees among different countries in the world. Although the coffee market is not a traditional sector used in the research on online platforms, this context does illustrate online marketplaces that can create and reinforce a valuation system to facilitate market exchanges. Moreover, the coffee industry has witnessed the proliferation of standards and valuation systems (Ponte and Gibbon 2005, Reinecke et al. 2012, Rindova and Fombrun 2001), suggesting the strategic role that coffee evaluation can have in encouraging market exchanges. Even if our empirical setting might seem unique, this setting allows us to control for two critical aspects: Differences in products' quality levels and critics' fraud. First, because there is an emphasis on high quality coffees in ACE, our context allows us to control for quality of coffees and concentrate on the critic-buyer effect on realized value. Second, our setting controls for fraud in the review process of this specialty products. ACE has developed tight control mechanism to ensure the quality level of its review process of coffees. Names of coffee critics are advertised in ACE webpage and because ACE has become one of the top seals in terms of quality in this niche, there are social credentials to be gained by being a critic.

Our contributions to the literature are two-fold. First, we introduce and investigate the critic-buyer effects on product valuation. To that respect, our study finds significant effects of critic buyers, and a transcendental and experiential value (Podolny and Hill-Popper 2004) on realized value of products exchanged, thus resulting in alternative valuation models. And second, we contribute more generally to the understanding of review systems of ambiguously assessed products. We show that a fluid exchanged between critic and buyer, coordinated by an online platform, is beneficial in value realization. We argue

that the understanding of different valuation practices managed by these central organizations (Sriram et al. 2015) have the potential to keep strengthening not only the theoretical foundations of this type of firms, but also practical questions such as marketing tools that online marketplaces employ to increase trust and commitment.

2. Valuation As a Cultural and Social Process

Our paper draws upon literature on evaluation at the market level (Beckert and Aspers 2011, Lamont 2012, Orlikowski and Scott 2014, Wijnberg and Gemser 2000, Zuckerman 2012). We follow the definitions of valuation provided by Lamont (2012: 205). Valuation is defined as practices that give or estimate worth or value of an object (i.e., product, event, person, etc.) and evaluative practices are defined as actions of assessing how the object attains a certain type of worth. Wijnberg and Gemser (2000) discussed three systems to assess the worth of products: Market selection, peer selection, and expert selection. However, in real cases, it is a combination of these types of selection systems that operate to distribute the value of products (Wijnberg and Gemser 2000). Thus, our emphasis in this study is on a combination of the three systems in a consecutive way. First, expert coffee critics rate coffee based on predetermined set of standards. Second these coffee experts are allowed to bid for some of these coffee samples if they want. The final selection mechanism is an anonymous online auction in which coffee buyers from different parts of the world bid online for coffees of their choice.

We also build on three aspects that conceive valuation as a social and cultural process (Lamont 2012). First, there is an intersubjective agreement and disagreement on a set of criteria against which the object of study is compared. Second, there is a negotiation process about the adequate criteria and about who is a legitimate evaluator. And third, there is the act of distinguishing and comparing the object to a set of criteria in a relational or indexical way. A constant tension in the literature on valuation processes has arisen due to the interactions between objective and subjective criteria against which the object is compared to (Shapin 2012, Verdaasdonk 2003, Zuckerman 2012). This suggests that a more fruitful approach is to understand how both—objective and subjective—criteria affect the evaluation process (Zuckerman 2012). We take this approach and contribute to the study of the effect that a more subjective criterion—dual roles of participants coordinated by a platform—can have on the evaluation of products transacted in such a marketplace. In our context, we can control for an objective measure of quality because there is a ranking that quantifies the quality levels of the different coffees. We can also control for potential fraud caused by critics, as we explain the methods section.

2.1. Critics as Buyers in Online Marketplaces

Scholars in the sociology of markets tend to agree that markets are social structures of exchange (Fligstein and Dauter 2007, McKague et al. 2015, Smith 2007, White 2002). As part of this social structure, critics can act as gatekeepers providing criteria (i.e., devices, instruments) to determine the

worthiness of products or services (Bourdieu 1993, Khaire and Wadhwani 2010, Wijnberg and Gemser 2000, Zuckerman 1999). These critics can become quite influential particularly in situations where the value of the goods at stake is rather ambiguous or difficult to determine (Gemser et al. 2008, Hsu 2006, Karpik 2010, Khaire and Wadhwani 2010, Zuckerman 1999). Content about the products in these markets tends to be specialized requiring high levels of expertise. Some examples of those industries are wine industry, arts, entertainment, and in our case the specialty coffee market.

Recent research on online platforms suggests that market organizers promote different strategies on information about products, which affect how sellers or their products are viewed by participants in the platform (e.g., search engines, ranking systems, competitions, etc.) (Bagozzi and Dholakia 2006, Dukes and Liu 2016, Gong et al. 2016, Hagiu and Spulber 2013, Orlikowski and Scott 2014, Smith 2007, Sriram et al. 2015, Standifird 2001). This research is starting to understand the impact that product information has on different platform dynamics. More specifically, scholars have discussed either the effects of conflict of interests between the platform and third party providers, or the effects of level of favorability between buyers and sellers relationships (Dukes and Liu 2016, Hagiu and Spulber 2013). We contribute to this literature analyzing the case of current buyers that were critics of the products being exchanged. This dual role phenomenon is present in different industries and it speaks about current marketing practices around product evaluation.

Online platforms also use group buying strategies (e.g., Groupon, Alibaba, eBay) to generate revenue. Traditionally, an online platform that offers the modality of group buying seeks to aggregate disparate and anonymous buyers (who operate remotely, asynchronously, and do not necessarily know each other), via the Web by providing them price-based incentives for volume purchases (Anand and Aron 2003, Wang et al. 2013). However, in our context, the dynamic of group buying behavior is different, and are formed before the online auction. Buyers get access to relevant information such as the characteristics of the coffees (e.g., ranking, sellers' location, variety of coffee, etc.), and can physically test coffee samples for four to five weeks before the online auction. During this time, groups of buyers share information about preferences and strategies, and typically create buyer groups. These buyer groups consist of buyers who contribute together to purchase coffee, similar to the concept of mutual funds, as they do not want or may not be able to afford the full lot of coffee. Since in this market, value is sometimes equated with rarity and scarcity, buyers may want a limited amount of the product. Once in the online auction, all online buyers remain anonymous. Thus, coffee buyers in an online auction do not know who else is bidding for a particular coffee lot.

We posit that critic-buyers build strong connection with the products they spend time on evaluating (Podolny and Hill-Popper 2004). As we will discuss in our methods sections, coffee critics travel to and spend a week tasting coffee samples. Furthermore, these buyers also have more comparative information

about the quality of the products than other buyers. Therefore, these critic-buyers have inside knowledge to determine which products are high quality to purchase. We argue that as these critic-buyers spend time with these products, they create strong desire to own them at any cost due to quasi-endowment effects (Heyman et al. 2004). If they are buying the product alone, or participate as a part of a buying group, they will purchase them at any cost, and will pay a higher price than others. Alternately, one may argue that a rational critic-buyer should do anything to increase their surplus. However, critic-buyers are not the only critics who evaluate the products, and therefore, do not get an opportunity to undervalue the product of their choice. Thus, we do not expect them to strategically undervalue the desired items. We, therefore, hypothesize that even after controlling for a ranking of quality level of a product:

Hypothesis 1: The higher the number of critic-buyers in the buying group, the higher the final price of the products will be.

2.2. Critics' Level of Engagement in the Marketplace

Next, we explore how past experience of critic-buyers affect the final price of products in these coffee auctions. Some critic-buyers may be very well engaged with the platform due to their previous valuation event participation than other critic-buyers. We suggest that critic-buyers, who are more engaged with the platform and other critics, will experience higher level of quasi-endowment effects than other critic-buyers, and will positively affect the price of the items they bid on. To test this hypothesis, we develop a novel method using social network theory. In particular, we measure the engagement level of critics based on their past valuation activities. We argue that critics who share evaluative events together create social ties in the form of implicit critic networks because they have the opportunity to exchange different experiences, interests, and information with each other (Cattani et al. 2008, Owen and Powell 2004, Ranganathan and Rosenkopf 2014). We suggest that the level of participation of these critics will transform into level of endowment for products they may have in these implicit critic networks. In situations where these critics can act as buyers and constantly participate in quality events, these positions can materialize and affect the economic exchanges in the platform.

Buyers who have played the role of critics in previous valuation events offered by the platform will have a stronger sense of belonging to the platform (Bagozzi and Dholakia 2006). By sense of belonging we refer to experiences of personal involvement in a system or environment such that people feel themselves to be an integral part of that system or environment (Hagerty et al. 1992). Previous research has found that participation of users in a platform is positively related to a sense of belonging and money spent in products related to the platform (Bagozzi and Dholakia 2006) and we argue that such belonging will lead to quasi-endowment effect and the desire to purchase the product at any cost. Therefore, we argue that:

Hypothesis 2a: The higher the degree centrality of critic-buyers in the buying group, the higher the final price of the product will be.

Hypothesis 2b: The higher the power centrality of critic-buyers in the buying group, the higher the final price of the product will be.

We use the research on organizational continuity (Taylor 1989) to theorize the negative effects that higher variance in the level of participation among buyers that have been critics in the platform might have on the realized price of the products transacted in the platform. As this research suggests, variability in the level of involvement of individuals with the collective effort might hurt the organizational stability, coordination and technical expertise necessary for the survival of the collective effort (Staggenborg 1989, Taylor 1989, Wehr 1986). Using these ideas, Cattani and colleagues (2008) showed that the greater the amount of interactions in the film producer-distributor network, the lower the exit rates of the producers (Cattani et al. 2008). They also showed that the more involved film distributors were in the network, the less the exit rates of film producers. Part of the explanation is that constant participation in producer-distributor networks strengthens agreement within the distributors concerning producers' value, thus influencing their continuity in the film industry.

Cohesive and stable bodies of critics might signal stability, coordination, and technical expertise. However, if these critics do not regularly participate in the platform, it would be more difficult for the platform to convey stability, coordination and technical expertise, and the products transacted in the platform might start losing value. Such irregular participation of critics may be reflected in their level of centrality, with more missing events leading to lower centrality. Therefore, if the group of buyers has varying rates of past participation (as indicated by high variability among the critic's centrality in the network), it may convey variability in expertise, knowledge, and judging quality, thus increasing perceived risk among buyers and resulting in lower prices (Pavlou and Dimoka 2006). We therefore propose:

Hypothesis 3: The higher the variability of the buyers in the critics' network, the lower the final price of the product will be.

3. Method

3.1. Platform Context

We use the case of specialty coffee as an illustrative case (e.g., Siggelkow 2007) of a platform organization in a sector that has not been explored much using the platform metaphor but in which market actors face significant valuation challenges because what a "good" coffee means is constantly re-evaluated (Giovannucci and Ponte 2005, Reinecke et al. 2012). Specialty coffee refers to coffee

designated as gourmet or premium due to special soils and ideal climates in which the coffee is grown. Furthermore, it is believed that the coffee is distinctive because of the flavors that such conditions produce and the general lack of defects. From a commodity in the 1980's, the coffee industry has since been reenergized with investments in this new market niche (Luttinger and Dicum 2006, Rindova and Fombrun 2001).

An important characteristic of this segment is the differentiation and de-commodification of coffee (Luttinger and Dicum 2006). There has been a proliferation of different standards and guidelines that continue to organize and define the identity of the new category, suggesting constant re-evaluation of the desirable characteristics of specialty coffees (Giovannucci and Ponte 2005, Reinecke et al. 2012). Among these guidelines, a particular effort to establish quality standards in the specialty niche has been performed by an organization called Alliance for Coffee Excellence (ACE), which is the platform that we study here.

3.2. Alliance for Coffee Excellence (ACE)

We study the quality competition and the related online auctions of specialty coffee, both events called Cup of Excellence (CoE) organized by ACE, a nonprofit organization. Thus, ACE is the platform that brings together different actors around specialty coffee. Established in 1999 in Brazil by a group of dedicated coffee specialists, international governmental support, and NGOs, the objective of ACE is to aid small scale farmers in being recognized monetarily for their hard work and effort in growing coffees of excellent quality (CoE 2011). Thus, since its origins ACE has had a social commitment with coffee growers and with coffee lovers in general. ACE organizes a quality based competition and an online auction of coffees from the same country in a given year. This online auction is organized about five weeks after the quality competition. Competitions and the related online auctions are distinguished by country and year; that is coffees from different countries are not mixed.

In the first set of events, the quality competitions, ACE coordinates the contribution of many different participants (interview Susie Spindler, Executive Director, ACE, 2011). Since participation in CoE is free and open to any farmer in the country hosting the competition, ACE has country partners that are usually governmental and private sponsors whose function is to promote the national coffee sector. There are three different groups which are the target participants in the competitions and auctions. First, ACE ensures that there is a strong presence of farmers capable and willing to participate in the competitions. Although in terms of size, there is a variation by country (i.e., Brazil has larger coffee farms than for instance Guatemala), the target population is small and medium sized coffee farmers that are not well known in the international market but that have done a careful job when growing specialty coffee. Thus, sellers' characteristics such as reputation tend to be less important in this segment. Second, ACE also has to promote these competitions among the community of international buyers of these coffees through the

online auction. These international buyers can be coffee importers, wholesale retailers, or other organizations that sell coffee in the specialty niche that are registered as buyers in the ACE database. And third, ACE nominates the head critic and organizes the group of international juries that cup (i.e., taste) the coffees in each of the competitions. As we explain later, these international juries or critics can also be coffee buyers in the online auction.

Cupping the coffee means that people with high levels of expertise on coffee tasting physically assess different qualities (e.g., visual, aroma, and taste) of coffee lots. These experts have to travel and meet in the same place to rate the coffee following certain guidelines provided by ACE. Until 2015, there were eleven countries (i.e., Brazil, Colombia, Guatemala, Bolivia, Honduras, Nicaragua, Costa Rica, El Salvador, and Rwanda, Mexico and Burundi), which have participated in the yearly competitions (although Bolivia's last competition was in 2009).

Participation as a critic in these quality competitions is considered to be a high level achievement for the person and for the organization that these critics represent. Here the division between the reputation of the individuals as coffee critics and the organizations that they represent tends to be blurred. First, although this segment is growing, specialty coffee is still a niche based industry, suggesting that the size of the industry is relatively small. Second, the type of organizations related to specialty coffee tend to be of medium or small size. Thus coffee critics represent the organizations and themselves in these competitions.

Some of the critics act as only coffee critics, but there are others that are both coffee critics and coffee buyers. Critics can apply to a competition in a specific country providing information about their experience tasting and buying coffee. ACE staff evaluates all applicants and chooses the final pool of critics based on experience as coffee cupper, experience as coffee buyer, and country of origin (interview commercial director CoE 2012). The final pool of critics represents a diverse set of countries, mainly from Japan, the Republic of Korea, and several countries in Europe, North America, and Oceania, among others. ACE also includes the two or three most experienced critics from the national round. Thus, ACE also constantly analyzes the performance of critics based on certain criteria and if the critic does not meet the criteria, the critic is not invited or accepted again (interview commercial director CoE 2012). This ensures a high quality level of international critics assessing the different coffees in the cupping competitions. As part of its value proposition, ACE ensures the expertise and professionalism of the cupping competition.

In the cupping competition, the detailed categories evaluated include sensory attributes such as acidity, aroma, cleanness of cup, and flavor, which are all attributes difficult to assess by non-experts in the coffee market (Donnet et al. 2010). In the coffee industry, coffee is assessed and rated based on a

100-point scale (scale provided by The Specialty Coffee Association of America—SCAA). On that scale, those which score an 80 or above are designated as specialty coffees (Donnet et al. 2010).

The quality competition is divided into two rounds. In the first round, national critics rate the coffee samples narrowing down the number of coffee samples. The second round includes international critics who travel to the location of the competition, and the most experienced national critics. This group of people blindly rate the coffees for approximately a week in the same location. During both rounds, coffee critics have access to coffee samples without any further information (i.e., growers, growing area, or coffee characteristics), and the rubric to assess the coffees. Samples are rated at least five different times in total. The set of international critics blindly rate the same coffee samples the same number of times. Only those coffees which consistently score the highest may progress further in the competition (the top ten are cupped six times) during the three-week process. The lots scoring 90 or higher are called "presidential," and receive an additional award. During the entire process the sellers remain anonymous to all of the critics. The three highest cupping scores are announced at a ceremony in the country in which the competition is taking place and the winning farmers are publicly recognized.

Usually up to 50 different coffees from the same country participate in the internet auction hosted by ACE; these coffee lots have scored higher than 85 in the round with the international jury. Buyers are members of ACE who have paid a membership and have access to an online data base with technical information about the coffees (i.e., origin, coffee grower, variety, quality ranking, processing systems, qualitative descriptions, altitude, and size of the lot, among others). The buyers can also physically taste coffee samples before the online auction. Table 1 describes the events organized by ACE in chronological order. ACE do not combine different coffees from different countries partially because national sponsors are the organizations who pay to have the competition organized in a specific country (see Table 1).

Insert Table 1 about here

3.3. Measurements

Dependent variable. Our dependent variable is the final price of the product (i.e., the USD per pound of coffee paid by the buyer(s) in the auction).

Dual roles. To calculate whether buyers were critics in the quality competition, we use the information provided on the ACE webpage on coffee critics and coffee buyers. Name of the critics, the organizations they represent and the countries of origin are advertised in the internet. Coffee buyers are also identified with the name of the organizations that are buying the coffee. This information is public after the auction. During the online auction, the buyers remain anonymous. We use the name of the organizations acting as both coffee critics and coffee buyers to identify the critic-buyer effect. We create a dummy variable with 1 when the buyer was a critic in the respective competition and 0 when it was not. Because a coffee lot

can be bought by many buyers, we sum up the times in which buyers were critics in the respective competition. We are using a summation because we want to capture information transmission and with more buyers this type of information does not diminish with usage like for instance more tangible resources (c.f., Borgatti 2005).

Affiliation networks. We use affiliation networks to build the networks formed by coffee critics in the different competitions (c.f., Borgatti and Everett 1997). These affiliation networks refer to networks among critics representing organizations based on the number of times these participants have attended different competitions over time. In this way, co-participation in different coffee competitions can be seen as opportunities to develop social ties, and opportunities for knowledge and information to flow between actors (Borgatti and Halgin 2004). In our case, 15 to 30 international critics or organizations travel to the hosting country of the cupping competition, stay at the same hotel and share at least a week cupping and tasting different coffee samples. We posit that different social dynamics and ties will evolve among them during this time, and as a result, frequent critics will have more opportunities to share information and to participate in evaluation of coffee lots.

Formation of affiliation networks. Affiliation networks can usually be built using secondary data such as participation records (Borgatti and Halgin 2004). As part of their credibility and objectivity building strategies in the coffee market, critics who have participated in different competitions are listed on the ACE website (i.e., organizations and country of origin). We took this information and built the affiliation network, where the critics represent the nodes, and the relationship strength between two critics is measured as the number of times these two critics have judged in common competitions. We form these affiliation networks for a given year t by using data from the inception of the competitions to year$_{t-1}$. Although the first CoE was organized in 1999, it held only one event per year (in Brazil) until 2000; therefore, we analyzed data starting from 2001. The network formation is illustrated in Figure 1. Figure 1a presents the connection between the critics based on the events participated in 2001. The figure illustrates the critics who have participated together in common events. Figure 1b shows how this network evolved in 2003 into a more complex network, with identification of some critics who are more central than others in terms of their participation frequency (identified by large-sized squares). From this information, we built the critics network using the software *UCINET* and computed the centrality measures of the network. Figure 2 depicts a snapshot of the affiliation networks of coffee critics at two points in time. Figure 2a shows the affiliation network in 2005, and Figure 2b illustrates the network in 2012. The figures show that the network has become dense over time with the formation of more connections among critics.

Insert Figures 1a , 1b, 2a, and 2b about here

Centrality measures. We compute two normalized centrality measures of the critics' network: degree centrality and Beta Power (also called Bonacich centrality). These two measures are most popular among other measures as they capture two different aspects of the critics in the network. A critic well known in the CoE events due to her extensive participation will have a higher degree centrality than others. Thus, the degree centrality index (C_D) is computed and normalized as (Knoke and Yang 2008, Marsden 1990):

$$C_D(n_i) = d(n_i) / (g\text{-}1) \quad (1)$$

Where $C_D(n_i)$ is degree centrality of the critic n_i, $d(n_i)$ is the total number of other critics that are connected to critic n_i, and g is the total number of critics in the network. Critics who have high degree are more central in the knowledge network, whereas those with low degrees reside on the social-periphery of the network (Dass, Reddy and Iacobucci 2014). The normalized degree centrality is the degree divided by the maximum possible degree expressed by a percentage (Borgatti et al. 2002).

Bonacich Power captures the measure of influence of a node over other nodes. It takes into account the structure of the entire network and relative connections of the nodes, and not just the immediate contacts of a given actor (Bonacich, 1987, 2007). This is a weighted form of centrality $\mathbf{C_w}$. Whereas degree centrality C_D treats all of an actor's connections to others equally, weighted centrality $\mathbf{C_w}$ considers the connections of the other actors to whom the focal actor is connected. For example, two critics, n_j and n_k, may have the same number of connections to other critics, but if the critics to whom n_j is connected are themselves highly central compared to critic n_k's connections, then critic n_j is more central according to the weighting captured in this index. Indices of weighted centralities capture averages of an actor's direct and indirect links (c.f., Google's Page Rank algorithm) (Dass et al. 2014). The beta weighted centrality, also known as Bonacich Power (Bonacich, 1987), for critic n_i, $\mathbf{C_w}(n_i)$ is derived by iteratively solving:

$$\mathbf{C_w}(n_i) = \alpha (\mathbf{I}\text{-}\beta\mathbf{X_m})^{-1}\mathbf{X_m}\mathbf{1} \quad (2)$$

Where α normalizes the sum of squares of the indices to equal the number of ties in the network, $\beta > 0$ weighs higher scores for actors tied to other central actors (in our case, the beta parameter is always positive), $\mathbf{X_m}$ is the adjacency matrix of critics' relationships, $\mathbf{I}$ and $\mathbf{1}$ are the identity matrix and a column vector of ones.

Since our final objective is to assign a centrality measure to the buyers on the auctions that have been critics in previous competitions, we then match the names of organizations that were both critics and buyers. Moreover, since buyers can buy as a group, we sum up the centrality measures whenever buyers in a group have been critics in previous competitions. To avoid a high correlation with the measure of dual roles (i.e., which measures participation of an organization as a critic in a given competition and then participation of the same organization as a critic in the respective auction), we include the centrality

measure in time *t-1* for an auction in time *t*. We further compute the variance of the degree and power centrality measures among different buyers in a group to capture the variability across the buyers as critics' centralities.

Control variables. We control for product quality and sellers reputation in our analysis by using the ranking information and the number of qualitative descriptors of the coffee taste (e.g., honey, caramel, apricot, etc.) provided by the coffee critics. We also control for characteristics related to the way in which the coffee is grown and where it is grown because these factors can affect the taste of coffee. We include information such as variety (e.g., Caturra, Bourdon, Catuai, Colombia, Typica, Pacamara, and Pacas) and processing type (e.g., conventional, pulped natural, and solar-dried); altitude (Mean Sea Level in kilometers); lot size in coffee bags of 30 kilograms each; and certification (e.g., organic, Alliance Rainforest, etc.). We include the number of winning bidders per lot to control for the size of the buying group. We control for year and country effects. Finally, we include the lag variable prices to coffee growers by country (provided by the ICO-International Coffee Organization) to control for possible endogeneity problems arising due to the effect of the coffee price in international markets in the final value realized in the auctions.

3.4. Data Analysis

The unit of analysis is each lot sold in an auction. Although we collected data from different countries, and years, the data follows a cross-sectional design; that is, there are no repeated measures. We analyze our data using a mixed model to identify the final form of the model, after controlling for the random effects of time and country. To account for skewness, we use the log-transformed final price of the coffee as our dependent variable. The hypotheses were tested using a Hierarchical Linear Models (HLM) approach of successive models. All our models follow the general form given below:

$$\text{Log (Final Price)}_{it} = \beta_0 + \beta_1 (\text{Score})_i + \beta_2 (\text{Coffee Descriptors})_i + \beta_3 (\text{Certification})_i + \beta_4 (\text{Altitude})_i + \beta_5(\text{Buyers})_i + \beta_6 (\text{Network Char.})_{i,t-1} + \beta_7 (\text{Buyer as Critics})_{i,t} + \beta_8(\text{COST})_{i,t-1} + \sum_v \beta (\text{Coffee Variety})_{vi} + \sum_p \beta (\text{Coffee Processing Types})_{pi} + \sum_y \beta (\text{Year})_{yi} + \sum_c \beta (\text{Country})_{ci} + error \quad (3)$$

Where *i* is coffee lot sold and control variables are *Score* (i.e., the numeric rating of lot *i* awarded by the critics), *Coffee Descriptors* (i.e., the number of coffee descriptors identified by the critics for lot *i*), *Certification*, *Altitude*, *Buyers* (i.e., the number of buyers of lot *i*), *Year*, *COST* (i.e., the time lag variable for prices to coffee growers by country), *Coffee Variety*, and *Coffee Processing Types*. To test hypothesis 1, we use *buyer as critics* which is the number of buyers in a buying group for lot *i,* country *j,* and year *t,* which have been critics in the competition for country *j* and year *t*. *Network characteristics*, used to test hypothesis 2A and 2B, is defined as degree centrality of buyers being critics in different competitions up

to year$_{t-1}$ (to account for multicollinearity issues with the variable *buyer as critics* at time *t*). Similarly, to test hypothesis 2B, we use power centrality of buyers being critics in different competitions up to year$_{t-1}$. Variance of degree centrality of buying groups in lot *i* is used to test for hypothesis 3.

4. Results

Table 2 displays descriptive statistics and a correlation matrix of our variables. The average score in the coffee competitions is 86.86, with a maximum score of 95.85. There have been lots bought by up to 16 winners, with the average being close to 2 buyers per lot. The number of critics in different competitions is between 14 and 33 people and although the percentage varies, in average 30% of the coffee critics can act as buyers in the respective auction. As Table 2 indicates, there is a high correlation between the dependent variable (log high bid) and score, number of bags, and the number of qualitative descriptors for each of the coffees. Moreover, as expected, there is a high correlation among the social network measurements.

Insert Table 2 about here

Table 3 reports the standardized beta coefficients of the five models analyzed in this study. We start our analysis by estimating a control model. These control variables include score, number of qualitative descriptors, and growing patterns of coffee samples (i.e., variety, processing system, altitude, etc.). We also include both the country macro information and year as dummy variables. As it is expected, we find that the score of the coffee lots is positively related to the final price. Other covariates with significant and positive relationships with final price are number of buyers, altitude, number of descriptors, and natural processing type. The size of the lot (i.e., bags) has a negative relationship with price, indicating that coffee sold in smaller quantities sell for higher prices.

Insert Table 3 about here

Hypothesis 1 states that the number of buyers in the buying group that have participated in the respective competition as critics is positively related to the final price of the product. To test this hypothesis, we include the count variable for the number of buyers of lot *i* participated as critics. The results indicate that indeed buyers participating as critics is positively related to the final price of coffee lots, although its effect size is relatively low ($\beta = 0.10$, *p-value* <0.001). Therefore, hypothesis 1 is supported. Hypothesis 2A states that direct connections buyers acting as critics in the critics' networks is positively related to the final price of the product. To test hypothesis 2A, we add the network measure degree centrality to the previous model. Results show that degree centrality ($\beta = 0.08$, *p-value* < 0.001) has significant positive effects on final price. We thus find support for hypothesis 2A. Hypothesis 2B

states that connections of buyers acting as critics to the wider network of critics is positively related to the final price of the product. Therefore, we include the power measure in the model and we find that it has a positive and significant effect on the price paid ($\beta = 0.05$, *p-value* < 0.05). We thus find support for hypothesis 2B. Finally, hypothesis 3 states that the variability of buyers in the critics' networks is inversely related to the final price of the product. To test this hypothesis, we add the variability of the buyers acting as critics in the critics' network (i.e., degree) as one of the covariates in the model. The results suggest that the variability of buyers in the critics' network has a significant negative effect ($\beta = -0.05$ *p-value* < 0.001) on the final price of the products, thus supporting hypothesis 3. Effects of other control variables remain rather similar in terms of effect size and direction for all the models. The above results indicate the presence of *Critic-Buyer Effects* on economic exchanges in business models that encourage duality of roles for buyers and critics. Table 4 reports a summary of the results.

Insert Table 4 about here

4.1. Robustness Check

In unreported estimations, we performed different analyses with the goal of testing the robustness of our results. For instance, we ran independent models for each of the variables of interest, and as expected, in the case of degree and power centrality, the only changes were an increase in the respective values of beta and lower levels of significance. We also performed different estimations for the measure of power. Since there are different alternatives to obtain the parameter Beta, we use an alternative method (i.e., 3/4 of the reciprocal of the largest eigenvalue of the matrix $\mathbf{X_m}$) (Podolny 1993, Robinson and Stuart 2007) but we continue to find a positive and significant effect.

5. Discussion and Conclusion

There have been several studies that discuss the general aspects of evaluation considered as a social and cultural process (e.g., Lamont 2012, Zuckerman 2012). The development of internet and the creation of new business models such as online platforms has the potential to contribute to a better understanding of social evaluation at market levels (Orlikowski and Scott 2014, Resnick et al. 2006). These organizations are developing new business models characterized by intense communication, development of networks, efficiencies, and complementarities, among others aspects (Amit and Zott 2001, Sriram et al. 2015). They also create interfaces in which disparate members interact and exchange information, encouraging but also controlling exchanges.

Questions about marketing mechanisms used by these organizations to encourage evaluation remain unanswered (Sriram et al. 2015), especially in market segments like the specialty coffee, where the conceptions of value of the coffee are constantly being negotiated. We theorize about *Critic-Buyer Effects*

on economic value of products exchanged in an intermediated market. Traditionally, different roles such as buyers and sellers are considered having different and sometimes conflicting interests, making organization of markets less stable (Ahrne et al. 2015). We propose that when the intermediary allows dual roles for critics as buyers, it can increase the participants' transcendent value, and affiliation to the organization, generating a quasi-endowment effect for buyers, and thus higher economic outcome. Our results suggest that, while controlling for key factors such as product/seller characteristics, and the quantitative measure of quality of coffees, which as expected is highly significant, the dual role between critics and buyers are positively related to price of exchanged goods. We also find support for both of our main arguments: Participation in the same event as both critic and buyers and constant participation of buyers in the networks of critics are positively related to the realized price of the product. The effects, while modest, can help explain better valuation models in market organizations. These effects can also contribute to a theoretical and practical understanding of more relational-based marketing strategies of market intermediation in an internet era (Bailey and Bakos 1997, Chakravarty et al. 2014, Sriram et al. 2015); we emphasize on dual roles of participants and its effects on exchange value. The following sections elaborate on each of these contributions.

5.1. Market Design: Fluid Yet Connected Roles

Our study contributes towards a better understanding of actions developed by a central organization in order to generate economic value. How this organization controls and encourages exchanges is closely connected with its business model. We deemphasize the role of competition and conflict of interests among different roles. Instead, we highlight the interplay of roles within the market using arguments based on the creation of transcendent value in critic-buyer dual roles (Podolny and Hill-Popper 2004), quasi-endowment effects (Heyman et al. 2004), and sense of affiliation of recurrent critics with the platform (Bagozzi and Dholakia 2006). We see a connection between the idea of dual roles and the well documented network effects in platforms. In this direction, we hope to contribute to a better understanding of network effects from a relational and marketing perspective. In our case, there is an interdependency between critics and buyers (i.e., buyers partially depend on the criteria of coffee critics in the competitions). And as shown here, buyers that have been critics before tend to pay more for the products in the platform. One way platforms can control this interdependency is through allowing and even enticing buyers to participate as critics. This contributes towards a better understanding of the value of networks effects and marketing choices that platforms make when designing their business models (Bailey and Bakos 1997).

5.2. Electronic Intermediation and Evaluation Systems

Electronic Market organizers face valuation challenges because among other things, authenticity and trustworthiness can be more controversial in the online world (Bailey and Bakos 1997, Orlikowski and

Scott 2014, Smith 2007). Thus, the understanding of how organizations manage to create reliable, legitimate, and trustworthy evaluation systems has the potential to extend our understanding of evaluation systems at the market level. This study contributes to scholars' understanding of this process by suggesting that these organizations design infrastructures in which different social structures can emerge. As we theorize here, critics' participations can evolve into networks partially designed by the online intermediary; buyers with central positions in these critics' networks can increase the level of involvement with the organization, which correlates with higher prices of products paid by these buyers.

Organizations at the center of a market can be seen as organizations that combine market, hierarchical, and network forms (Ahrne et al. 2015, Powell 1990). From the market perspective, these organizations offer some choice, flexibility, and opportunity. However, markets created by these central organizations also follow more tangible and concrete rules, acting as infrastructures that orchestrate different sides of the market (Chakravarty et al. 2014). Commonly by means of the internet, platforms have the capacity to influence the identity, visibility, and connectivity of participants (Faraj et al. 2011, Orlikowski and Scott 2014). As Espeland and Sauder have argued, "people change their behavior in reaction to being evaluated, observed, or measured" (2007 : 1). Platforms are therefore powerful places in which these subtle ways of altering behavior can be reinforced (Sriram et al. 2015). We argue that our paper contributes to a better understanding of these elusive mechanisms such as dual roles between buyers and critics and its effects on valuation at the market level.

5.3. Conclusion

Organizations at the center of a market place are becoming pervasive in an economy based on the internet and sharing of information. There has been an impressive amount of research done on the fundamental characteristics that make these settings highly efficient and competitive market places. We think that a more complete and relevant picture of what these organizations represent needs to include their management of evaluation systems. We focus on understanding organization of evaluation systems in which dual roles played by buyers/critics are encouraged. We have explicitly linked ideas of socio-cognitive aspects of evaluation and marketing strategies to understand subtle and more relational-based mechanisms that make platforms powerful *levers* capable of shaping worth in our world.

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TABLES

Table 1. Chronological order of events organized by ACE per coffee growing country

Stages	Event	Participants	Type of interactions	Duration
1	Advertisement in the growing coffee country of coffee competition	ACE – national sponsors*	Online and face to face between national sponsors and farmers	Several months
2	Preparation of coffee samples, national round	National jury - head critic (ACE) – national sponsors	Face to face in the country sponsoring the competition	Approximately 1 or 2 weeks
3	International coffee competition, international round	International jury - head critic (ACE) – national sponsors	Face to face in the country sponsoring the competition	Approximately 1 week
4	Advertisement of the final coffee lots to be auctioned	Buyers from different countries interact - ACE	Face to face (different coffee buying countries) and online	4 to 5 weeks
5	Online auction	Registered buyers - ACE	Online	3 to 4 hours

*There could be other international sponsors, but national institutions are the main sponsors per competition/auction

Table 2. Descriptive and Correlation Matrix

	Variable	N	Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Log (final price per lb.)	2055	1.62	0.58										
2	Score for each lot (80-100)	1910	86.86	2.37	0.59*									
3	Total of descriptors per lot	1908	12.92	6.34	0.55*	0.53*								
4	Bags (Lot size)	2055	30.37	18.27	-0.07*	-0.02	0.15*							
5	Altitude (MSL/1000)	1692	1.5	0.24	0.27*	0.12*	0.21*	-0.02						
6	Prices to growers (US cents per lb.)	1809	88.8	48.25	0.48*	0.09*	0.33*	0.31*	0.33*					
7	Total buyers	2055	1.96	1.92	0.27*	0.25*	0.15*	0.01	0.05	0.12*				
8	Buyers as critics per lot	2055	0.41	0.71	0.22*	0.29*	0.11*	-0.05	-0.01	-0.01	0.41*			
9	Sum degree per lot	2055	2.98	5.74	0.08*	0.31*	0.09*	-0.04	0.02	-0.17*	0.29*	0.46*		
10	Sum power per lot	2055	1.20	2.09	0.38*	0.37*	0.23*	-0.04	0.10*	0.13*	0.42*	0.49*	0.61*	
11	Variance degree per lot	2055	1.36	6.75	0.18*	0.28*	0.13*	-0.08*	0.04	-0.01	0.26*	0.34*	0.46*	0.54*

* $P < .01$

Table 3. Regression Models Dependent Variable Log Highest Bid [a]

Variable	Controls		H1		H2A		H2B		H3	
Variance degree per lot									**-0.05****	**(0.00)**
Sum power per lot							**0.05+**	**(0.01)**	**0.06+**	**(0.01)**
Sum degree per lot					**0.08****	**(0.00)**	**0.04+**	**(0.01)**	**0.06+**	**(0.00)**
Buyers as critics per lot			**0.10****	**(0.01)**	**0.07****	**(0.01)**	**0.06****	**(0.01)**	**0.06****	**(0.01)**
Score for each lot	0.48**	(0.00)	0.46**	(0.00)	0.45**	(0.00)	0.45**	(0.01)	0.45**	(0.00)
Total descriptors for each lot	0.07**	(0.00)	0.07**	(0.00)	0.07**	(0.00)	0.07**	(0.01)	0.07**	(0.00)
Bags (lot size)	-0.18**	(0.00)	-0.18**	(0.00)	-0.18**	(0.00)	-0.18**	(0.01)	-0.18**	(0.00)
Altitude	0.06*	(0.05)	0.05*	(0.05)	0.05*	(0.05)	0.05*	(0.05)	0.05*	(0.05)
Lag prices growers commodity market	0.03	(0.00)	0.01	(0.00)	0.02	(0.00)	0.02	(0.01)	0.01	(0.00)
Caturra (variety)	-0.03	(0.03)	-0.03	(0.03)	-0.03	(0.03)	-0.03	(0.03)	-0.03	(0.03)
Bourbon (variety)	-0.04	(0.03)	-0.04+	(0.03)	-0.04+	(0.03)	-0.04+	(0.03)	-0.04+	(0.03)
Catuai (variety)	-0.06**	(0.02)	-0.06**	(0.02)	-0.06**	(0.02	-0.06**	(0.02)	-0.06**	(0.02)
Colombia (variety)	-0.01	(0.04)	-0.01	(0.04)	-0.01	(0.04)	-0.01	(0.04)	0.00	(0.04)
Typica (variety)	-0.02	(0.04)	-0.03	(0.04)	-0.02	(0.04)	-0.02	(0.04)	-0.03	(0.04)
Pacamara (variety)	0.00	(0.04)	0.00	(0.04)	-0.01	(0.04)	-0.01	(0.04)	0.00	(0.04)
Pacas (variety)	0.00	(0.03)	0.00	(0.03)	0.00	(0.03)	0.00	(0.03)	0.00	(0.03)
Other variety	-0.02	(0.03)	-0.02	(0.03)	-0.02	(0.03)	-0.02	(0.03)	-0.02	(0.03)
Total buyers per lot	0.08**	(0.01)	0.04*	(0.00)	0.02	(0.00)	0.02	(0.01)	0.02	(0.00)
Brazil (hosting country)	0.02	(0.30	0.10	(0.30)	0.08	(0.30)	0.07	(0.30)	0.07	(0.30)
Colombia (hosting country)	0.14**	(0.05)	0.15**	(0.05)	0.15**	(0.04)	0.14**	(0.04)	0.15**	(0.04)
El Salvador (hosting country)	0.04	(0.05)	0.02	(0.05)	0.03	(0.05)	0.03	(0.05)	0.03	(0.05)
Guatemala (hosting country)	0.24**	(0.04)	0.24**	(0.04)	0.24**	(0.04)	0.24**	(0.04)	0.24**	(0.04)
Honduras (hosting country)	0.00	(0.04)	-0.01	(0.04)	-0.01	(0.04)	-0.01	(0.04)	-0.01	(0.04)

Nicaragua (hosting country)	0.05	(0.04)	0.04	(0.04)	0.04	(0.04)	0.04	(0.04)	0.04	(0.04)
Certification (hosting country)	0.02	(0.04)	0.02	(0.04)	0.02	(0.04)	0.02	(0.04)	0.02	(0.04)
Year 2003	-0.22**	(0.10)	-0.23**	(0.10)	-0.24**	(0.10)	-0.24**	(0.10)	-0.24**	(0.10)
Year 2004	-0.30**	(0.10)	-0.32**	(0.10)	-0.32**	(0.10)	-0.32**	(0.10)	-0.32**	(0.10)
Year 2005	-0.38**	(0.09)	-0.40**	(0.09	-0.42**	(0.09)	-0.41**	(0.09)	-0.41**	(0.09)
Year 2006	-0.33**	(0.08)	-0.35**	(0.08)	-0.35**	(0.08)	-0.35**	(0.08)	-0.34**	(0.08)
Year 2007	-0.16**	(0.08)	-0.18**	(0.08)	-0.18**	(0.08)	-0.17**	(0.08)	-0.17**	(0.08)
Year 2008	-0.10+	(0.07)	-0.12**	(0.07)	-0.12**	(0.07)	-0.12**	(0.07)	-0.12**	(0.07)
Year 2009	-0.08+	(0.07)	-0.11*	(0.07)	-0.10*	(0.07)	-0.10*	(0.07)	-0.10*	(0.07)
Year 2010	0.10*	(0.07)	0.09+	(0.07)	0.09+	(0.07)	0.09+	(0.07)	0.09+	(0.07)
Year 2011	0.01	(0.05)	0.00	(0.05)	0.00	(0.05)	0.00	(0.05)	0.00	(0.05)
Processing techniques (sun)	-0.09*	(0.04)	-0.10*	(0.04)	-0.10*	(0.04)	-0.10*	(0.04)	-0.09*	(0.04)
Processing techniques (natural)	0.05	(0.30)	-0.04	(0.30)	-0.02	(0.30)	-0.01	(0.30)	-0.01	(0.30)
Processing techniques (conventional)	-0.11**	(0.04)	-0.12**	(0.04)	-0.11**	(0.04)	-0.11**	(0.04)	-0.11**	(0.04)
R-squared	0.73		0.74		0.75		0.75		0.76	

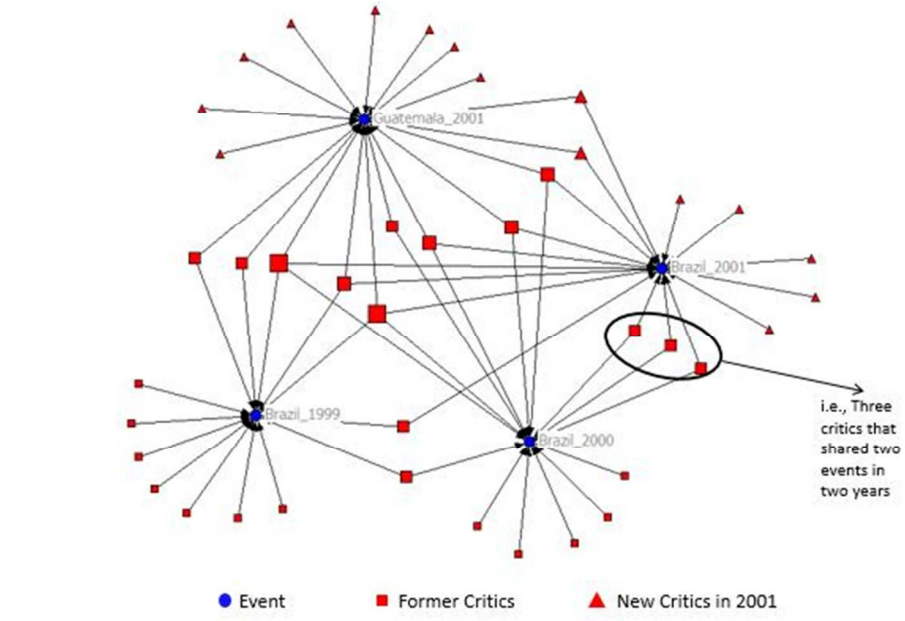
[a] +p< 0.05, * p <0.01, ** p < 0.001. Standardized Betas, Standard errors are in parenthesis. N= 1470

Table 4. Summary of supported hypotheses

	Hypotheses	Supported/ Not Supported
H1	The higher the number of critic-buyers in the buying group, the higher the final price of the products will be.	Supported
H2A	The higher the degree centrality of critic-buyers in the buying group, the higher the final price of the product will be.	Supported
H2B	The higher the power centrality of critic-buyers in the buying group, the higher the final price of the product will be.	Supported
H3	The higher the variability of the buyers in the critics' network, the lower the final price of the product will be.	Supported

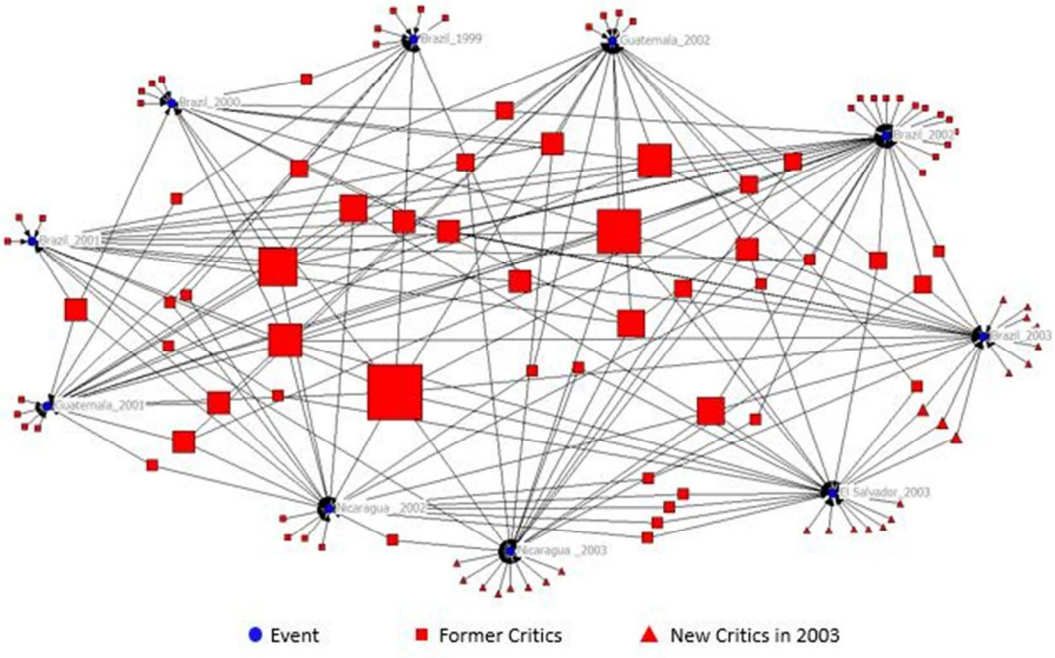
FIGURES

Figure 1a: Critics' Affiliation Network in 2001



Note: Size of the squares varies according to degree centrality

Figure 1b: Critics' Network in 2003



Note: Size of the squares varies according to degree centrality

Figure 2a: Critics' affiliation networks 1999-2005 [a]

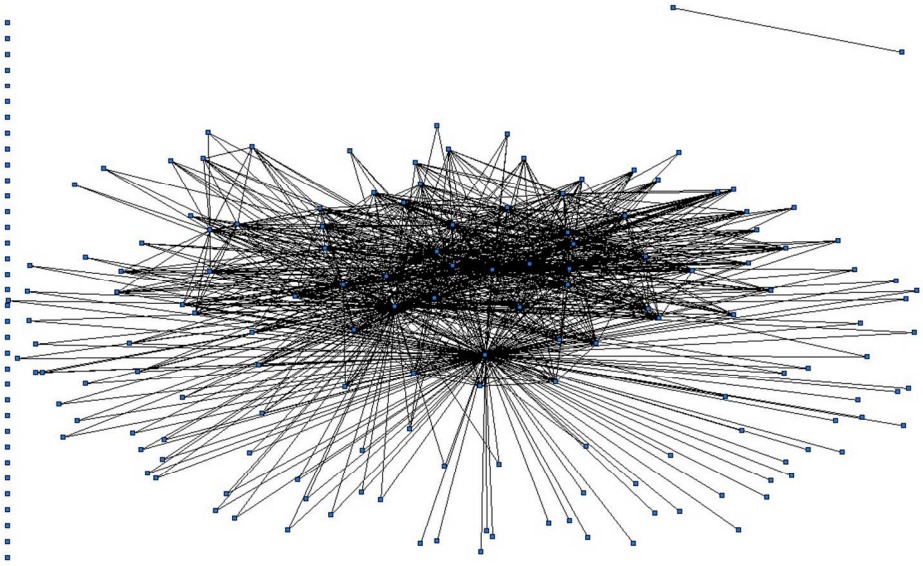
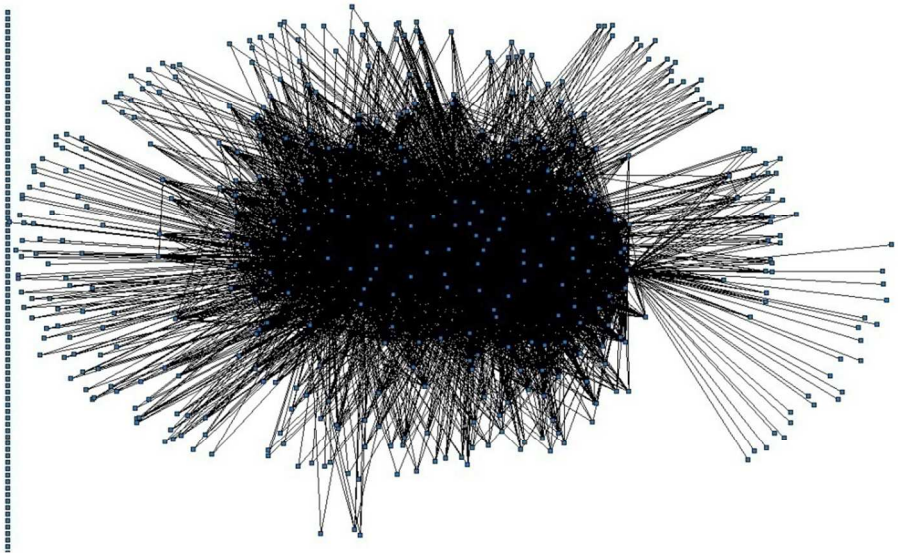


Figure 2b. Critics' affiliation networks 1999-2012 [a]



[a] To facilitate interpretation, ties between actors are restricted to represent 4 or more common events.